10030569.020202

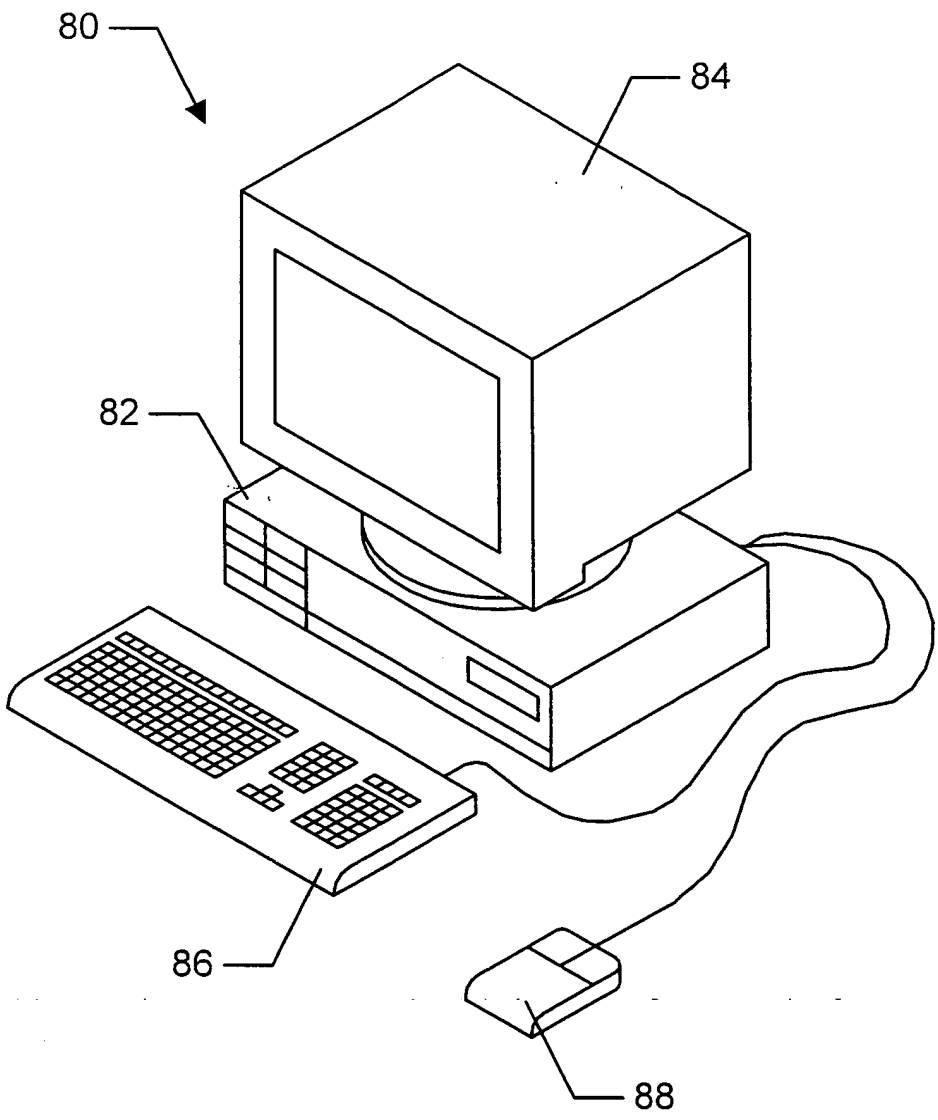


FIG. 1

20820 "9E9580DT

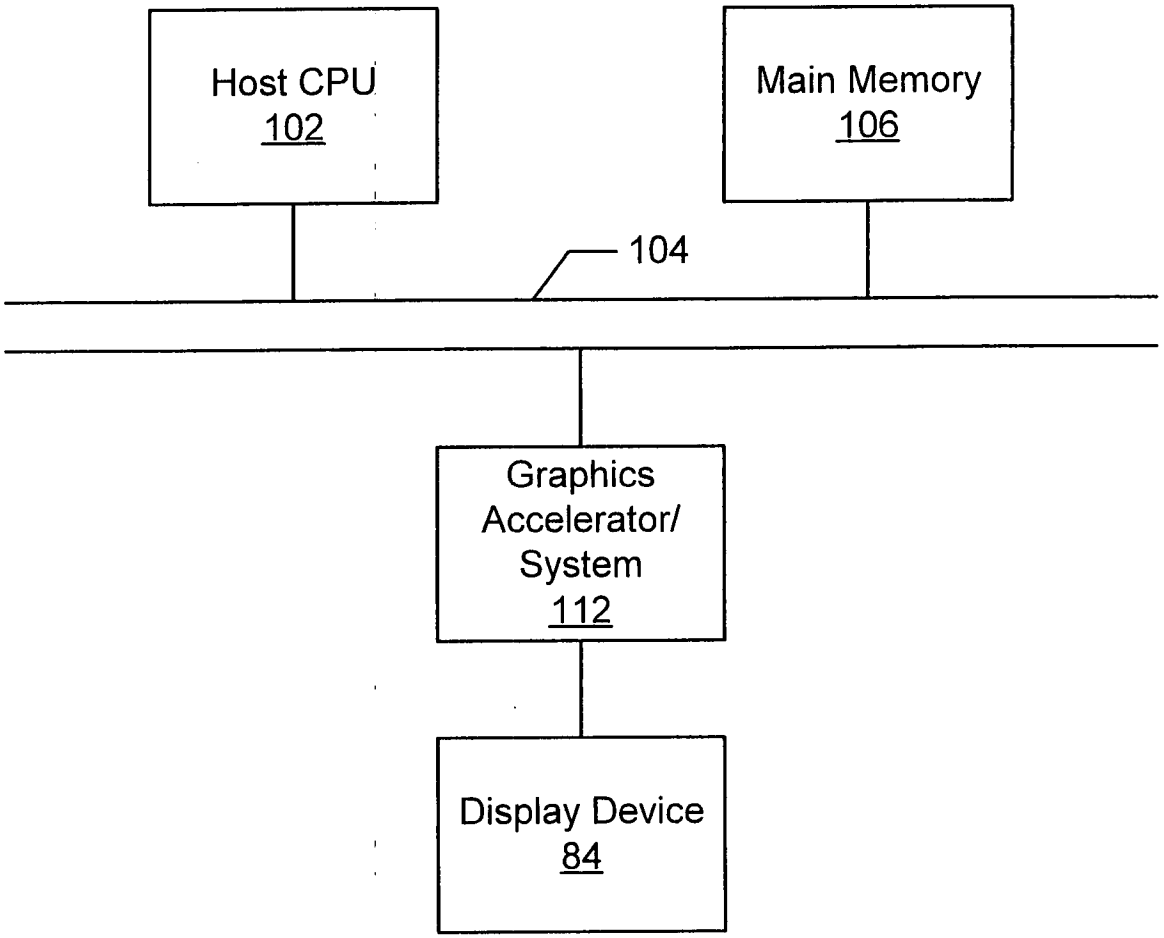


FIG. 2

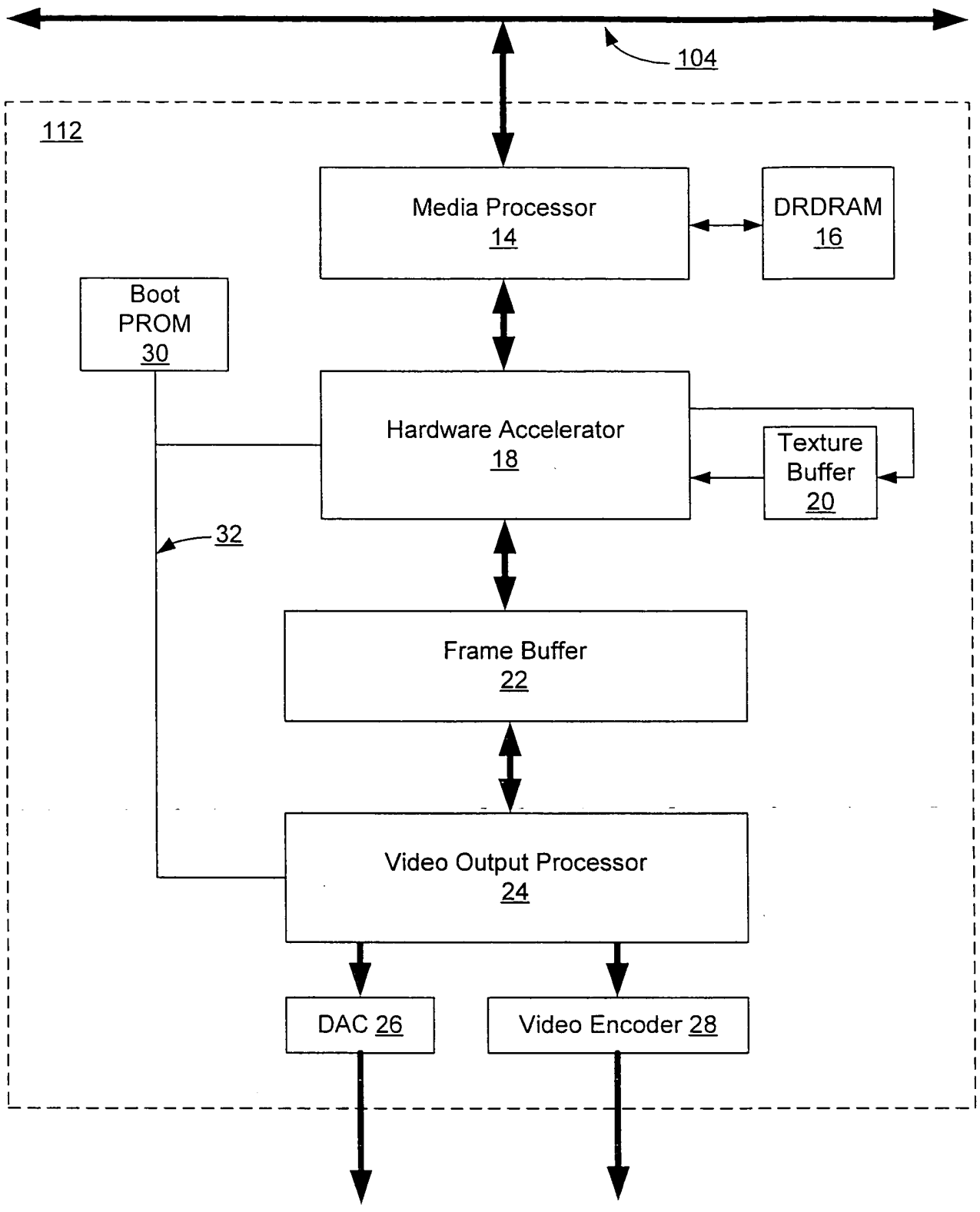

104
112
Media Processor
14
DRDRAM
16
Boot
PROM
30
Hardware Accelerator
18
Texture
Buffer
20
32
Frame Buffer
22
Video Output Processor
24
DAC 26
Video Encoder 28

FIG. 3

20820 9E9580DT

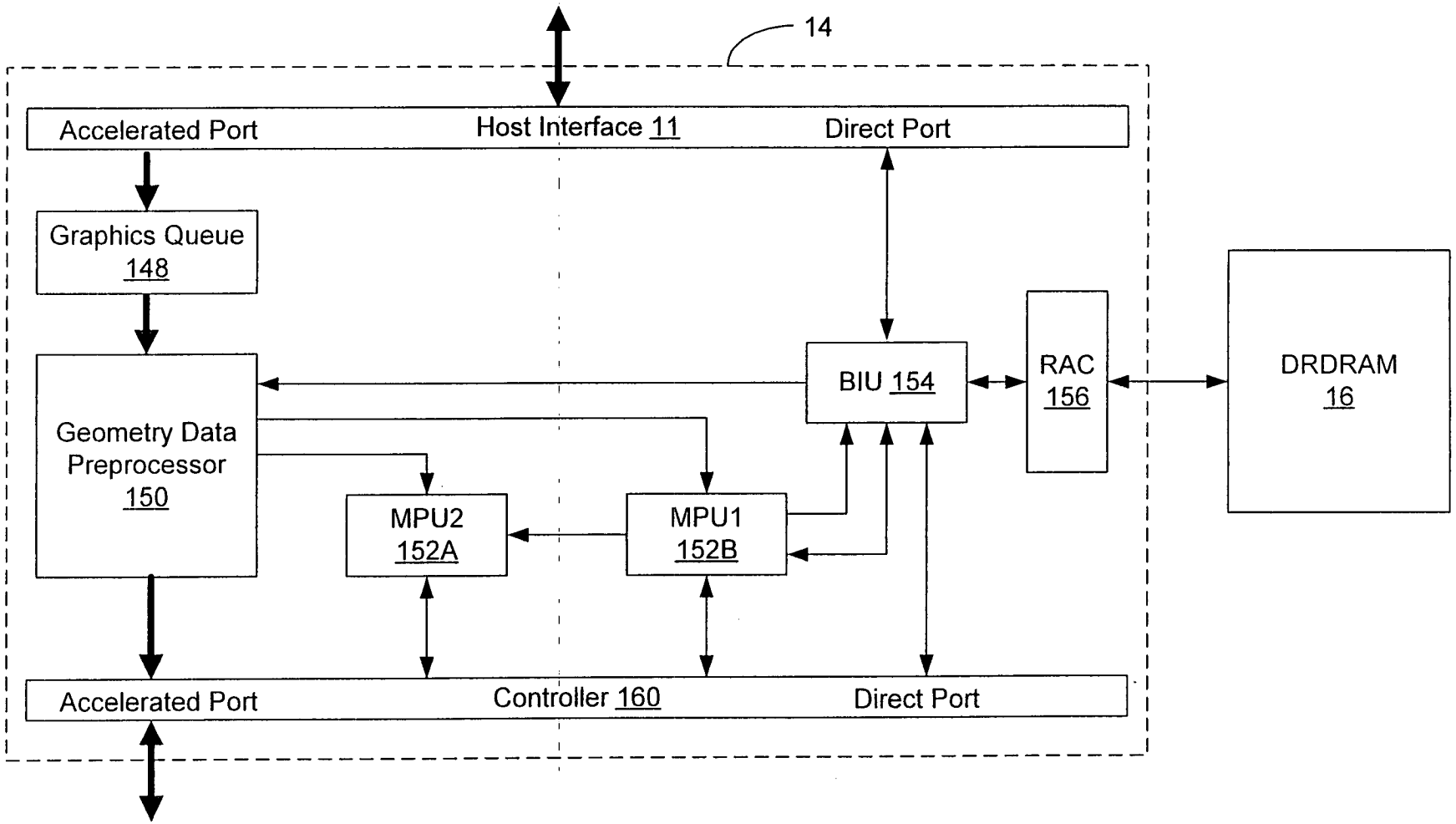


FIG. 4

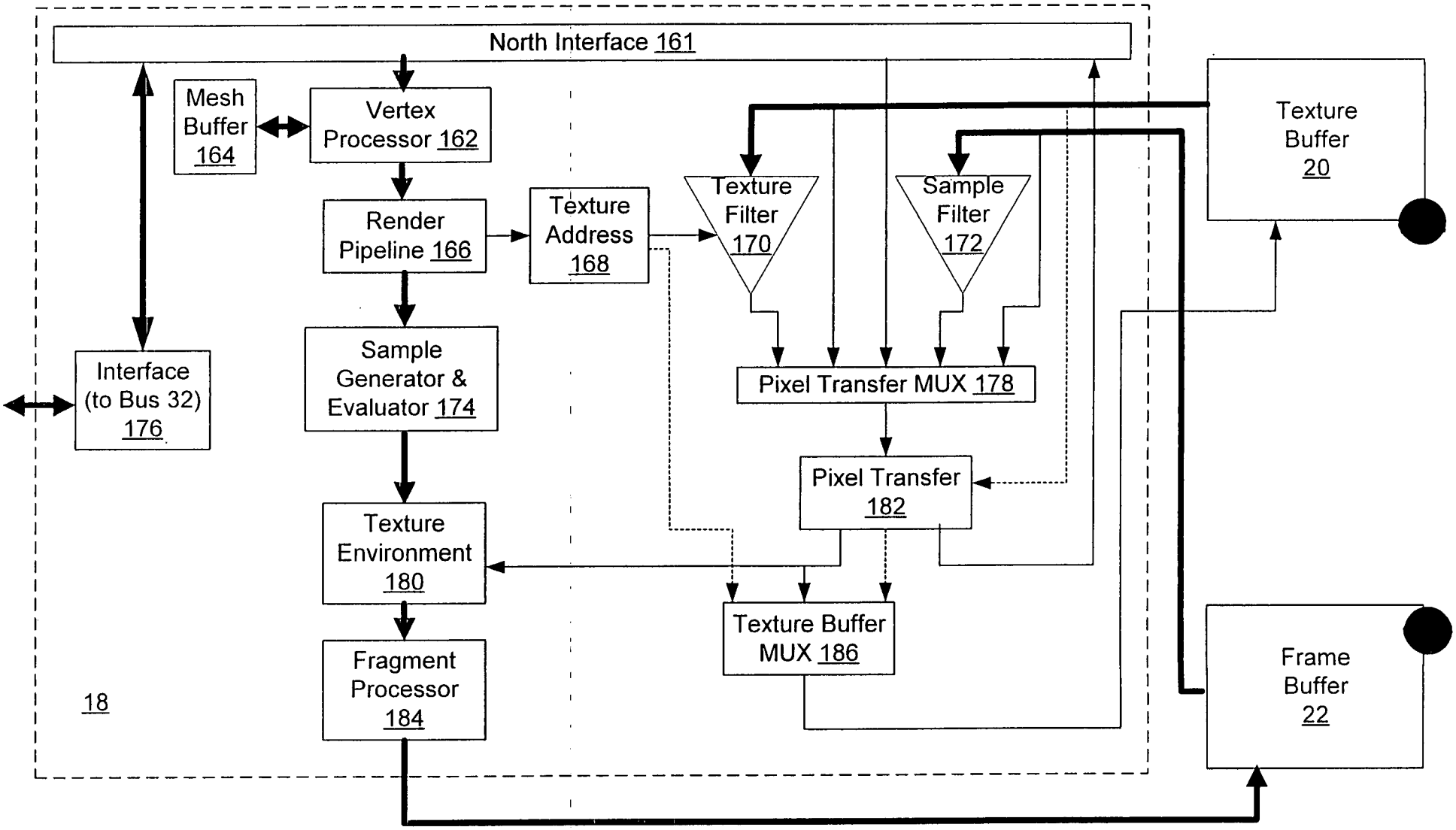

North Interface 161
Mesh Buffer 164
Vertex Processor 162
Render Pipeline 166
Texture Address 168
Texture Filter 170
Sample Filter 172
Texture Buffer 20
Interface (to Bus 32) 176
Sample Generator & Evaluator 174
Pixel Transfer MUX 178
Pixel Transfer 182
Texture Environment 180
Texture Buffer MUX 186
Fragment Processor 184
Frame Buffer 22
18

FIG. 5

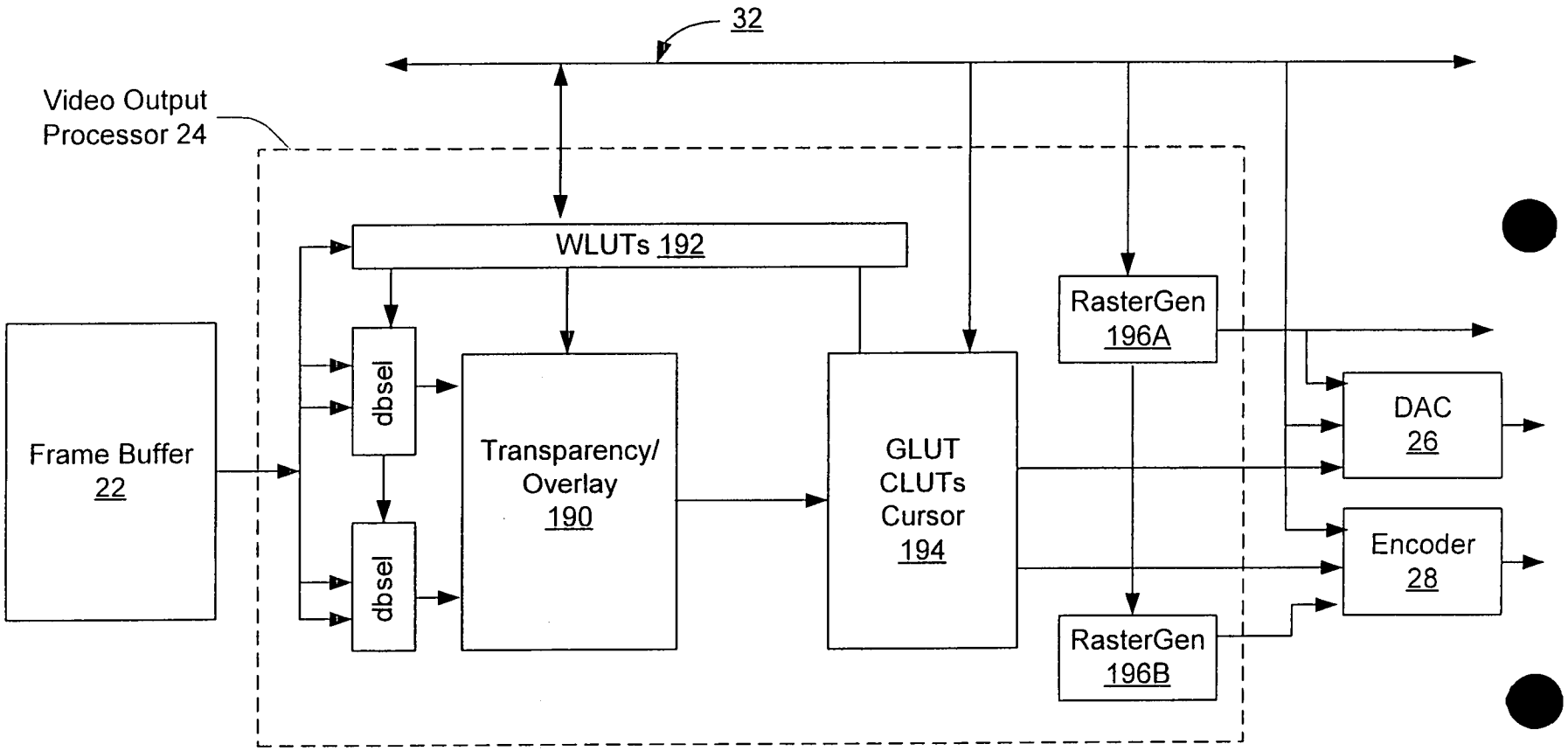

32
Video Output
Processor 24
WLUTs 192
Frame Buffer
22
dbsel
dbsel
Transparency/
Overlay
190
GLUT
CLUTs
Cursor
194
RasterGen
196A
RasterGen
196B
DAC
26
Encoder
28

FIG. 6

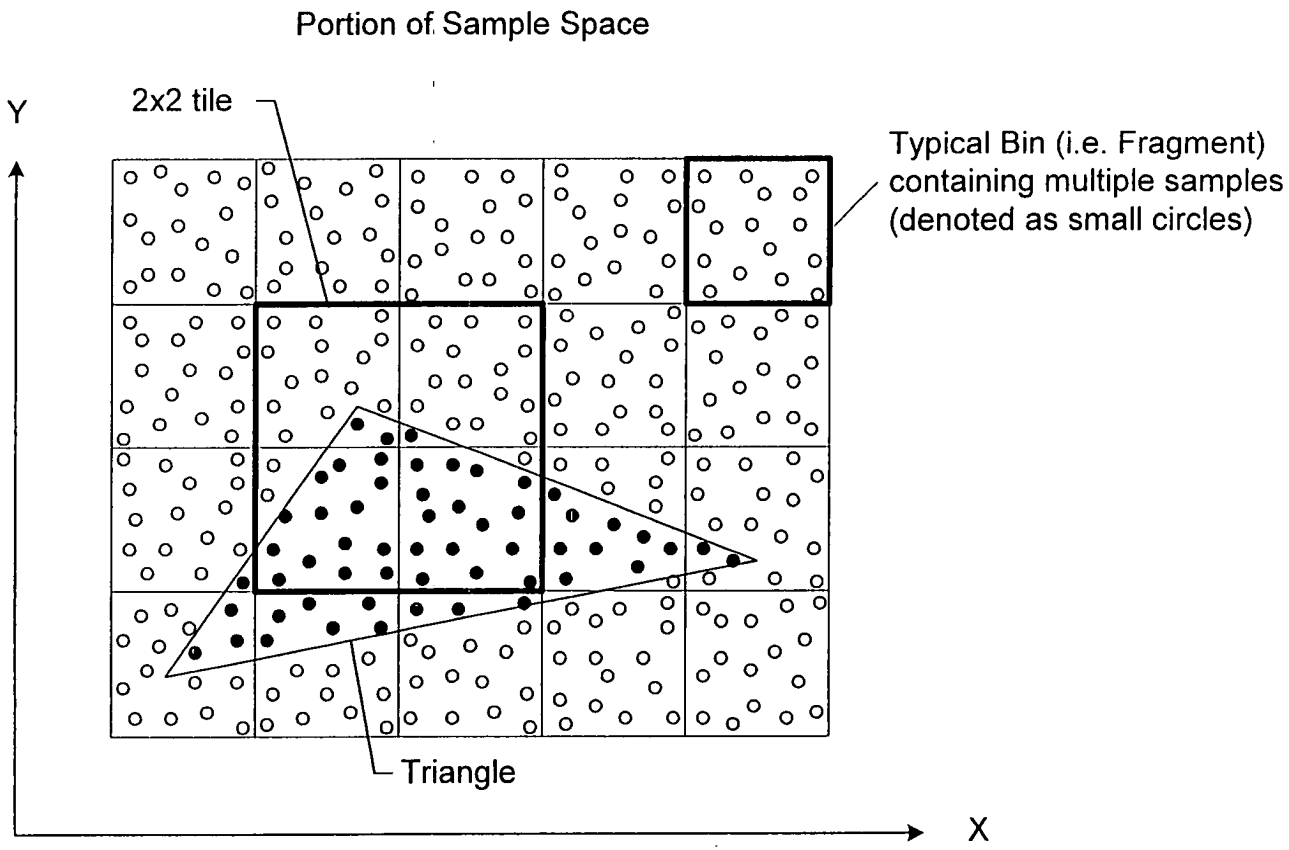

Portion of Sample Space
2x2 tile
Y
Typical Bin (i.e. Fragment)
containing multiple samples
(denoted as small circles)
Triangle
X

Fig. 7

10/05/2005 - 02202802

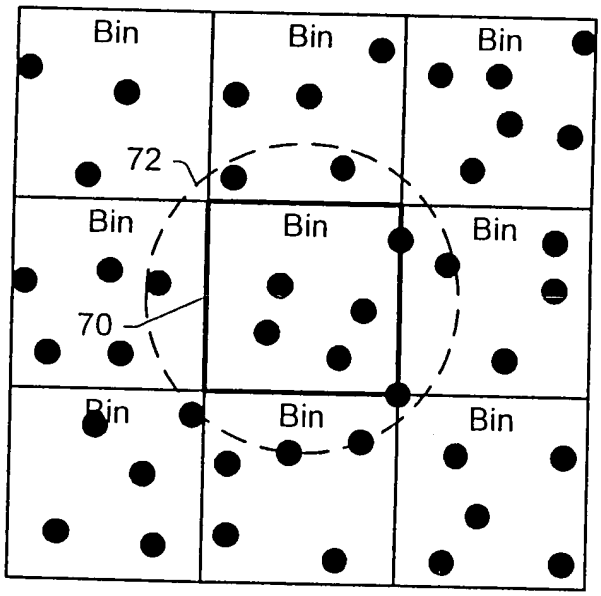


Fig. 9

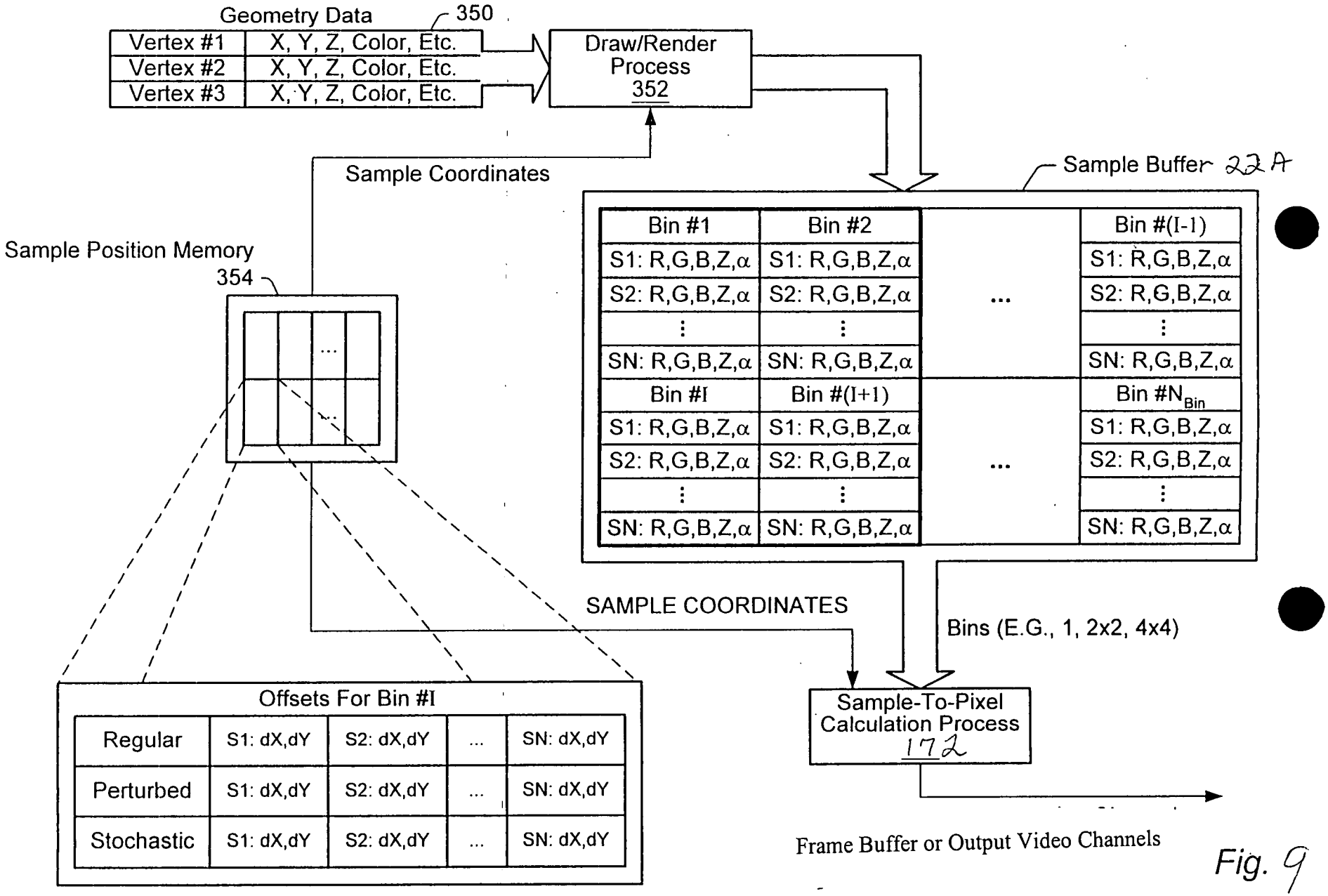

Geometry Data
350
Vertex #1 X, Y, Z, Color, Etc.
Vertex #2 X, Y, Z, Color, Etc.
Vertex #3 X, Y, Z, Color, Etc.
Draw/Render Process 352
Sample Coordinates
Sample Buffer 22A
Sample Position Memory 354
Bin #1 Bin #2 ... Bin #(I-1)
S1: R,G,B,Z,α
S2: R,G,B,Z,α
SN: R,G,B,Z,α
Bin #I Bin #(I+1) Bin #N_Bin
SAMPLE COORDINATES
Bins (E.G., 1, 2x2, 4x4)
Offsets For Bin #I
Regular S1: dX,dY S2: dX,dY ... SN: dX,dY
Perturbed S1: dX,dY S2: dX,dY ... SN: dX,dY
Stochastic S1: dX,dY S2: dX,dY ... SN: dX,dY
Sample-To-Pixel Calculation Process 172
Frame Buffer or Output Video Channels

Fig. 9

F0350E-02280

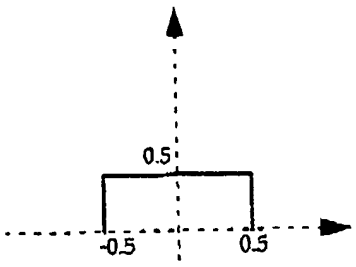


Figure 10A

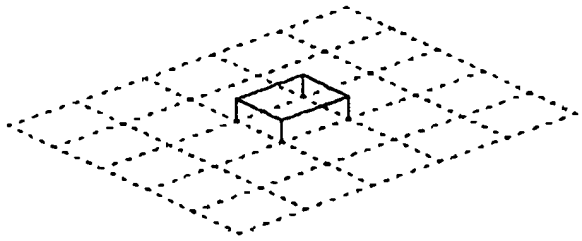


Figure 10B

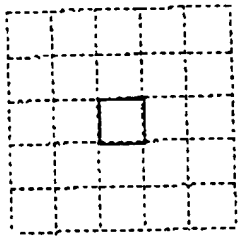


Figure 10C

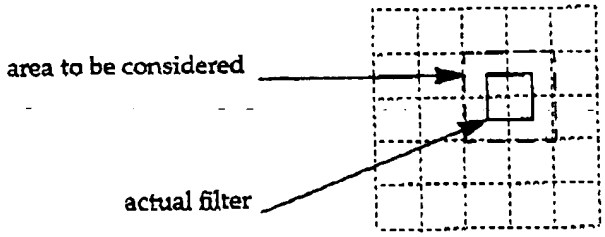
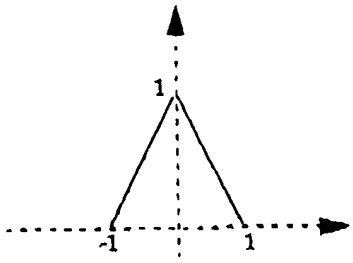
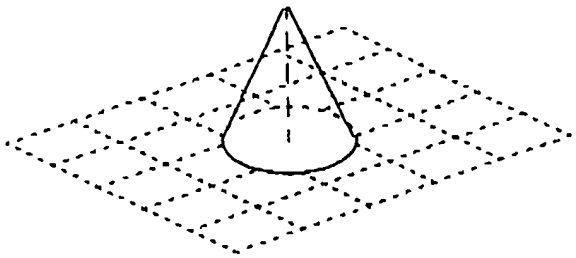


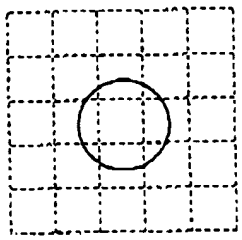
Figure 10D



11A



11B

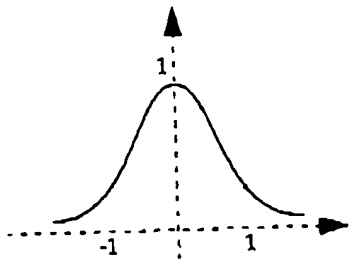


filter base

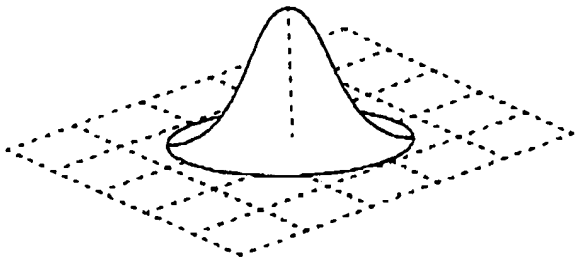
11C

10085696.020202

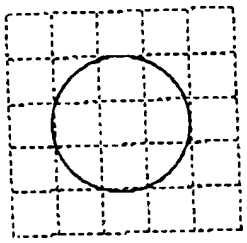
EP 0 835 963 A2 980408



12A

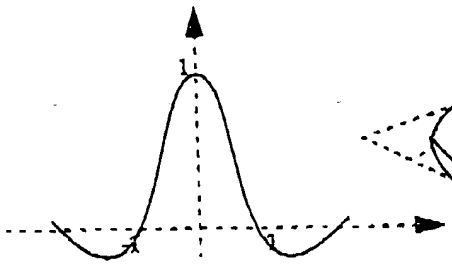


12B

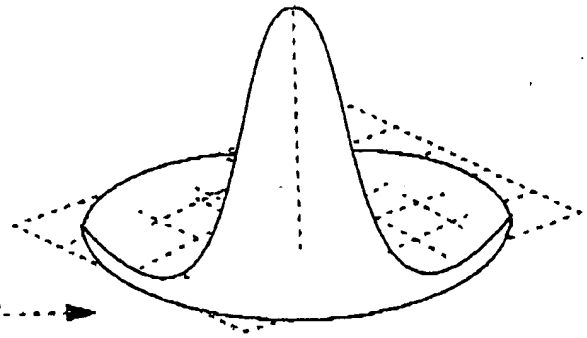


filter base

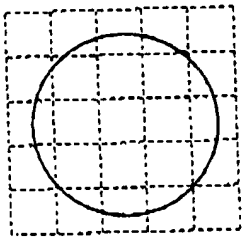
12C



13A



13B



filter base

13C

EXHIBIT 1008 - PAGE 0052

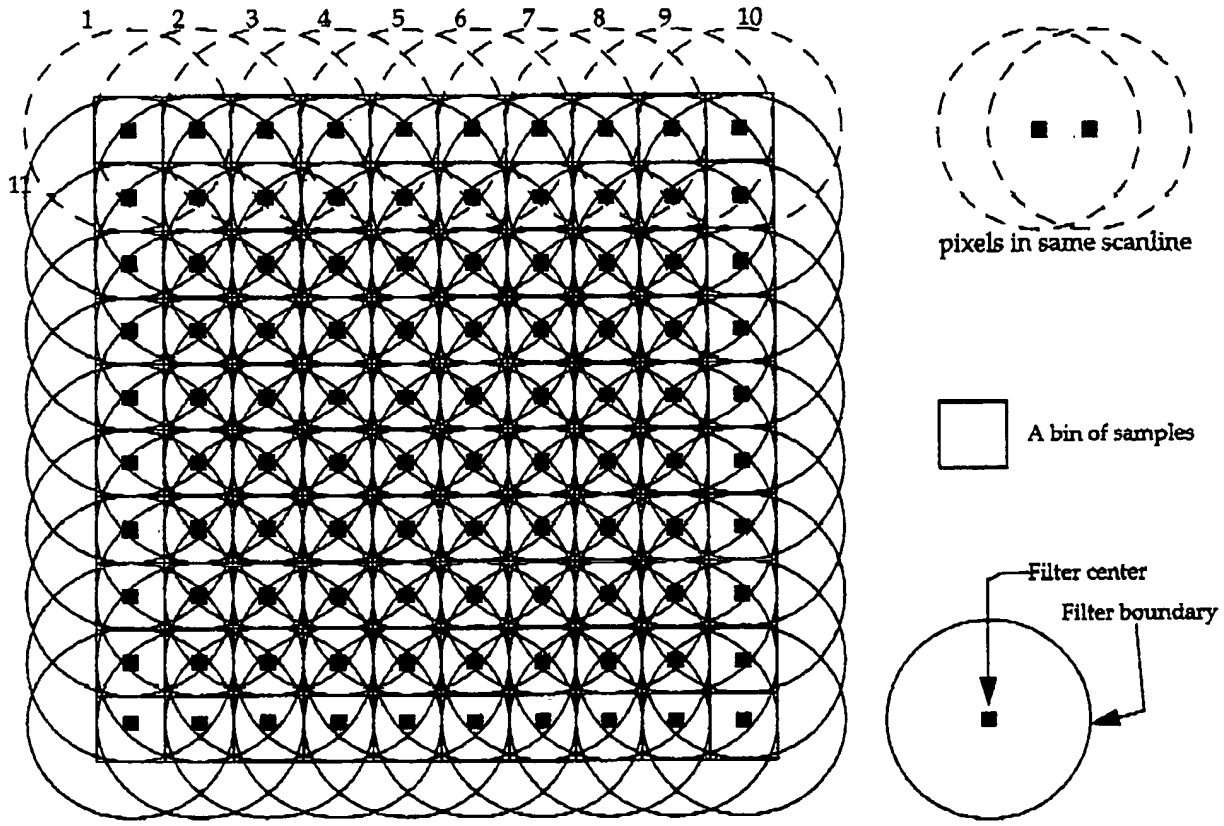
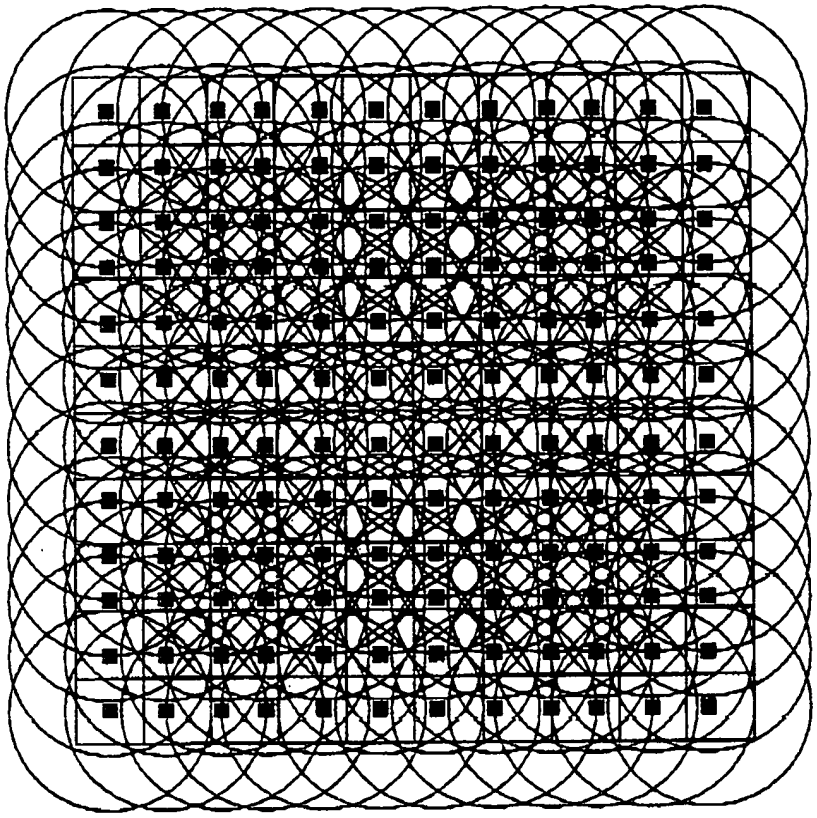


Figure 14

10056956.020202



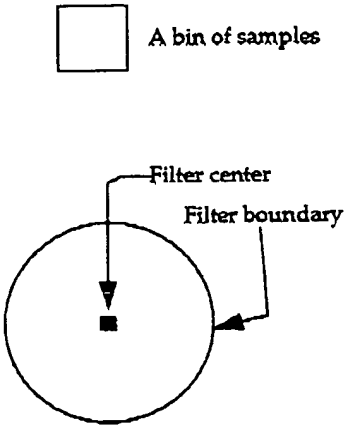
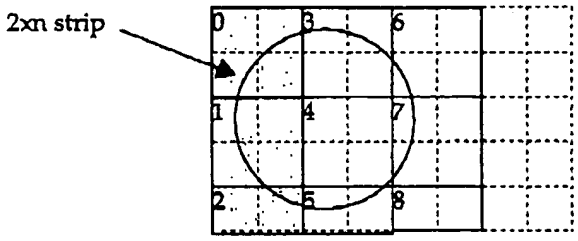
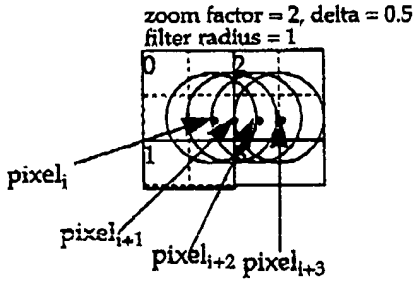


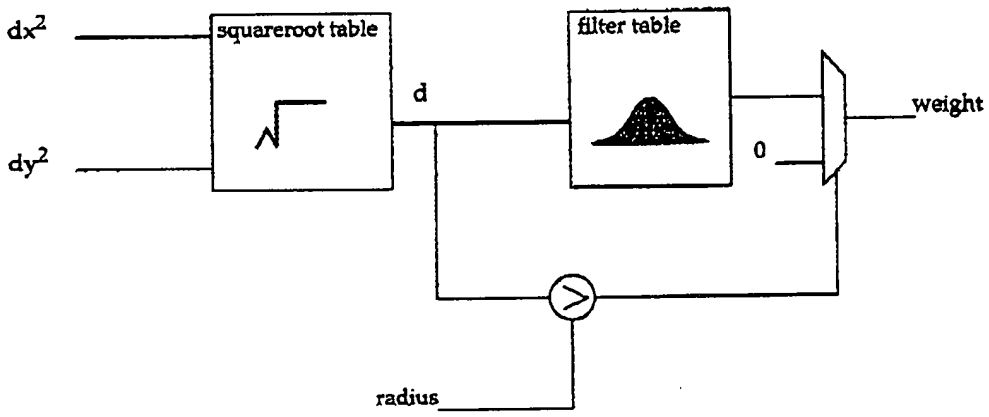
Fig 15

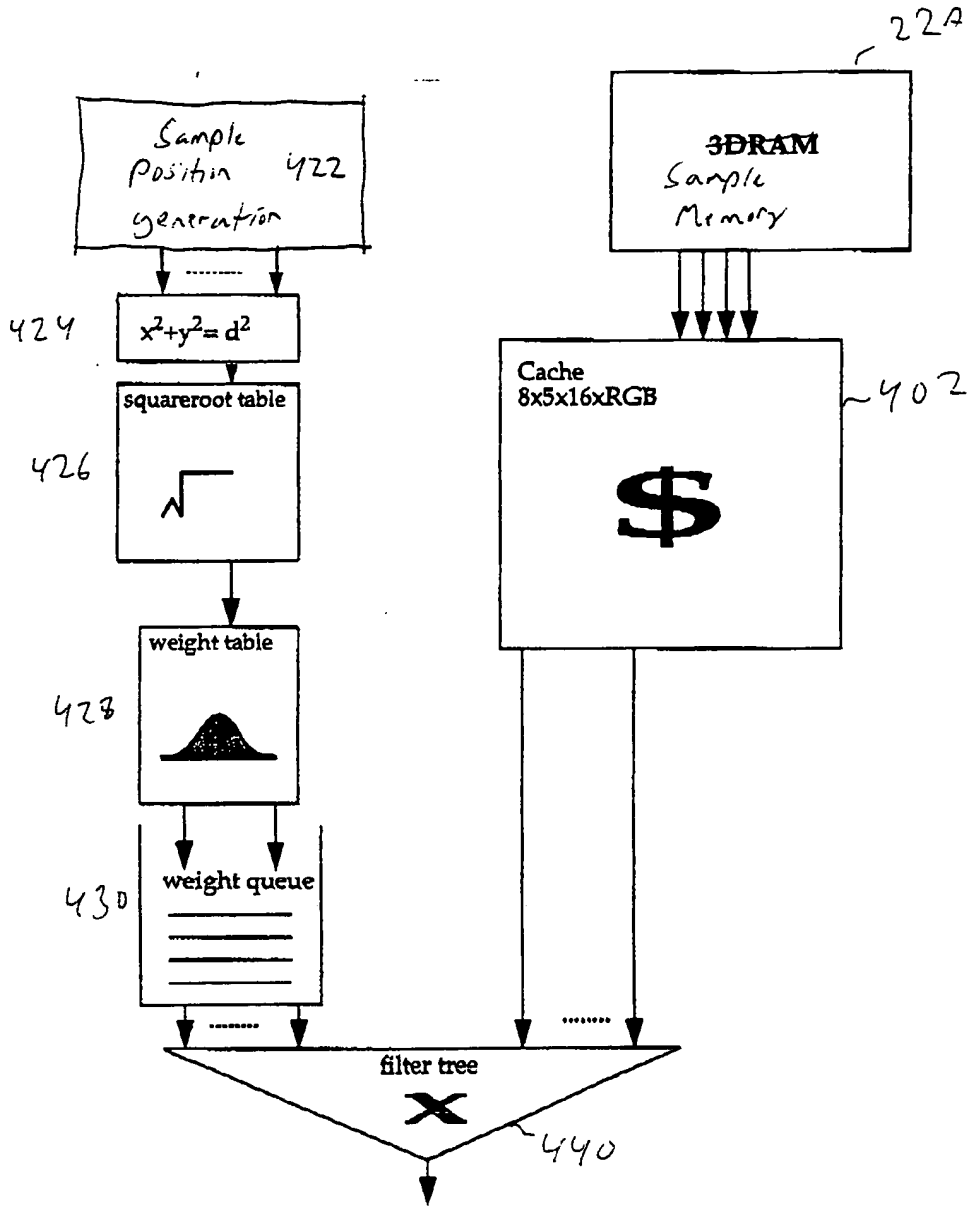

2xn strip
0
3
6
1
4
7
2
5
8

16

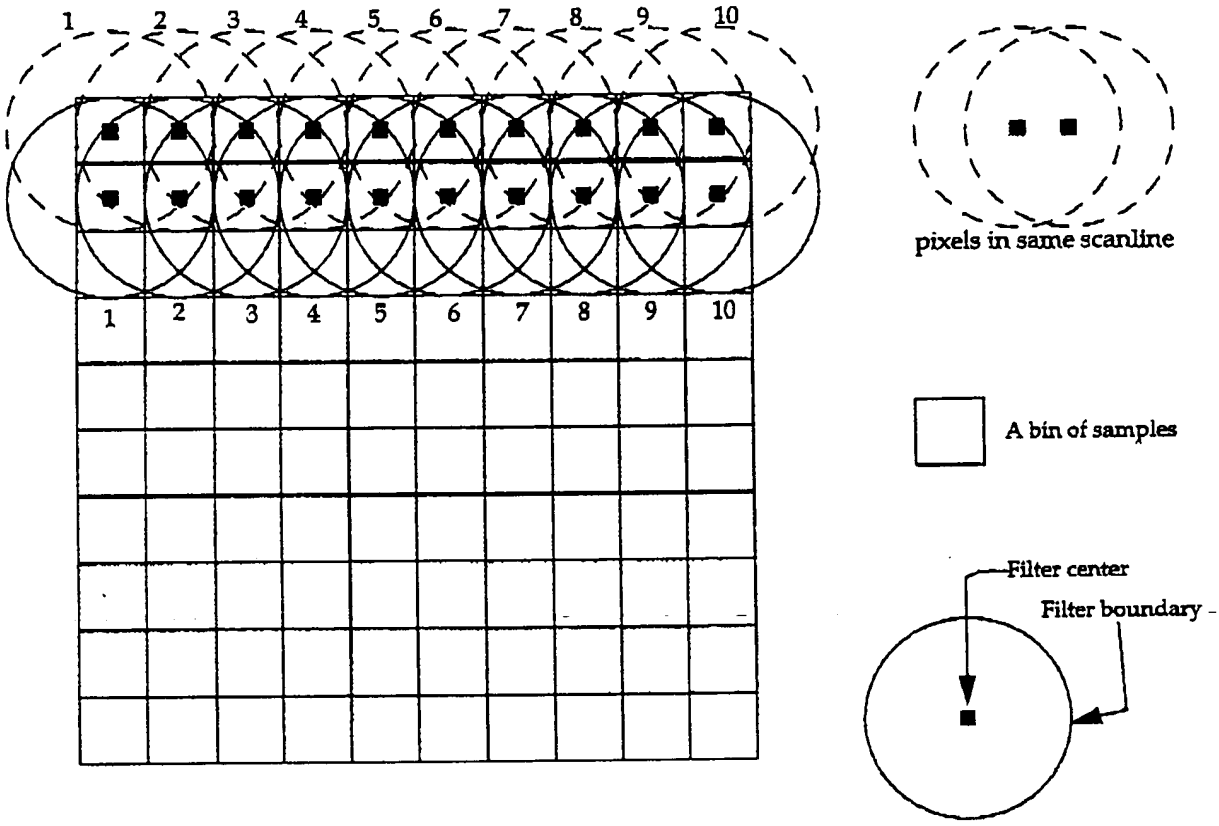

zoom factor = 2, delta = 0.5
filter radius = 1
0
2
1
pixel$_i$
pixel$_{i+1}$
pixel$_{i+2}$
pixel$_{i+3}$

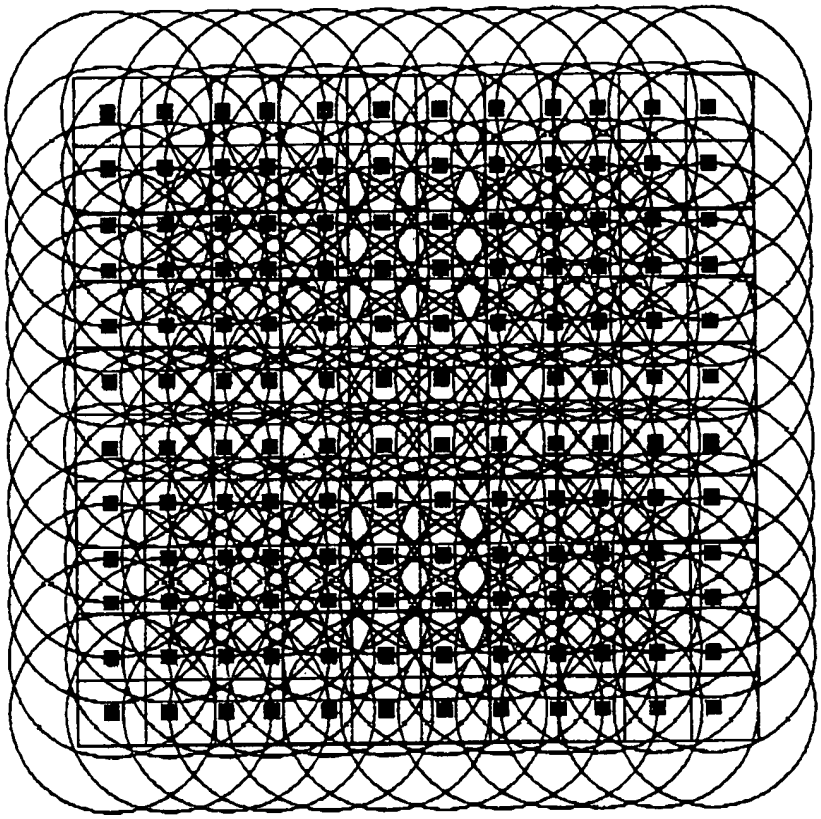
17

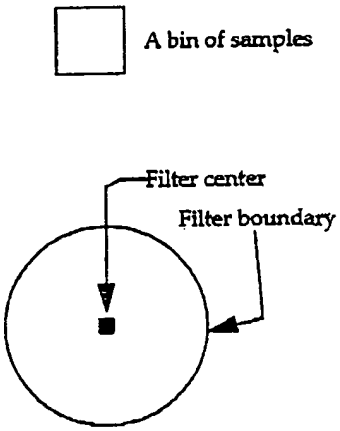

dx2
dy2
squareroot table
d
filter table
0
weight
radius


Sample position generation
422
3DRAM
Sample Memory
22A
424
$x^2+y^2=d^2$
squareroot table
426
Cache
8x5x16xRGB
402
$
weight table
428
weight queue
430
filter tree
X
440

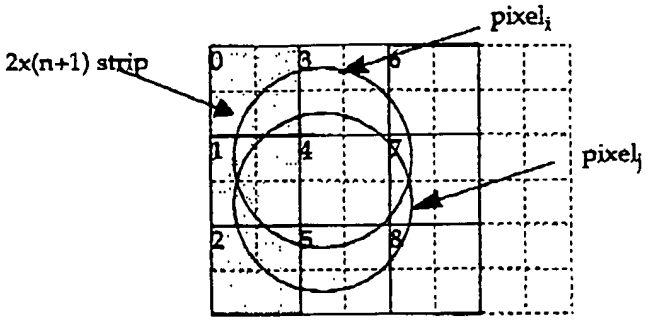
4005960.020802



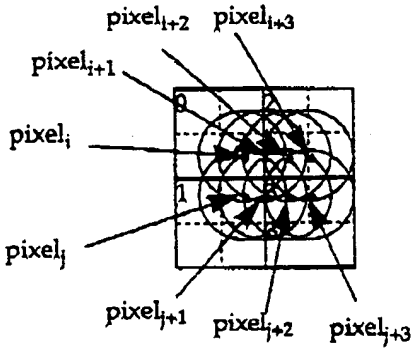




4008505-0202

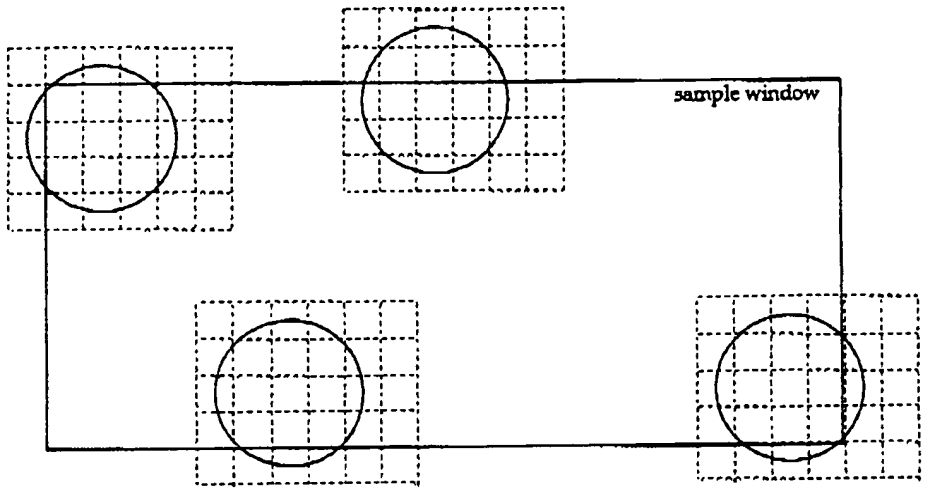


22



zoom factor = 2, delta = 0.5
filter radius = 1

23



24

1008595936-0228802

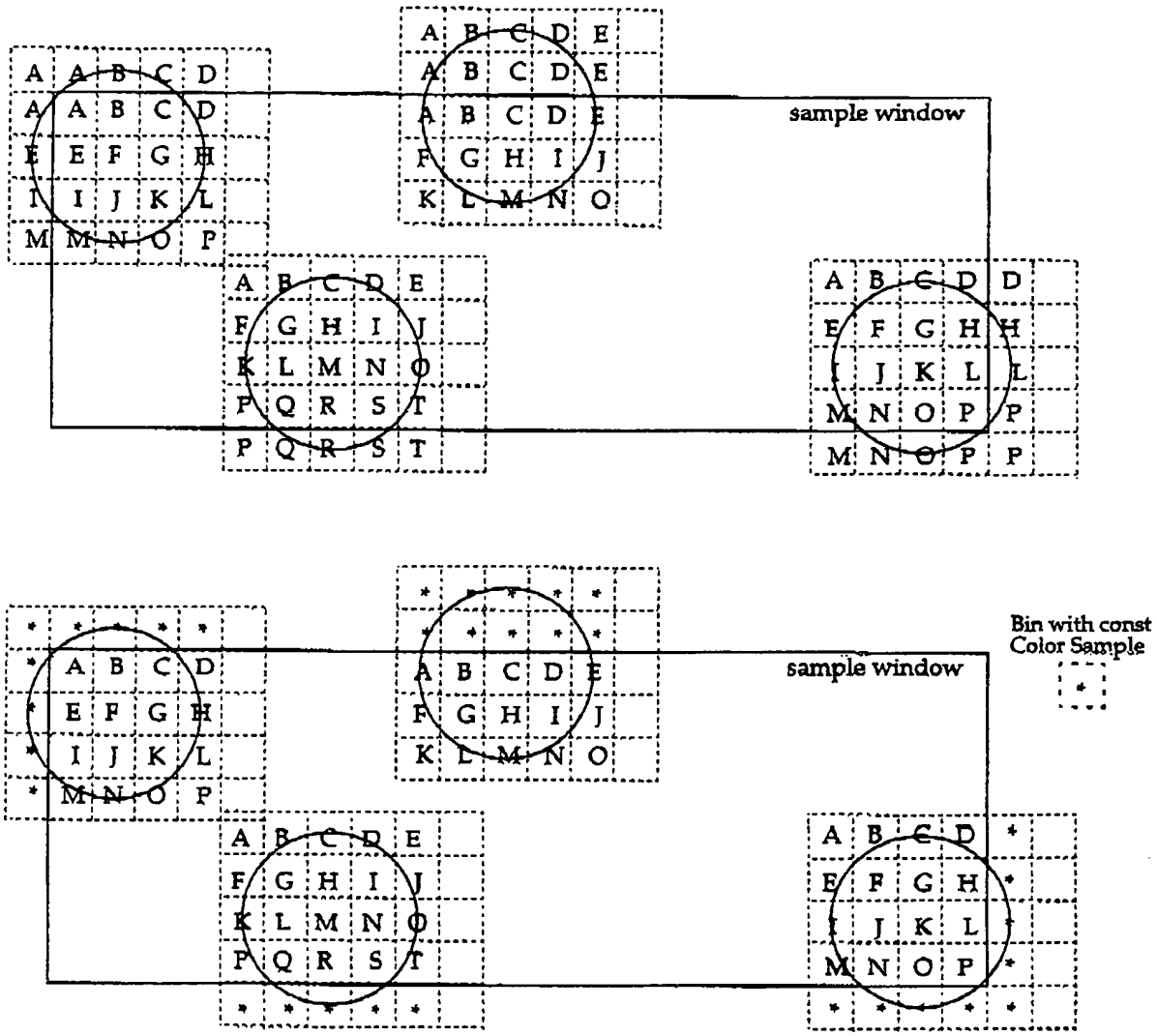
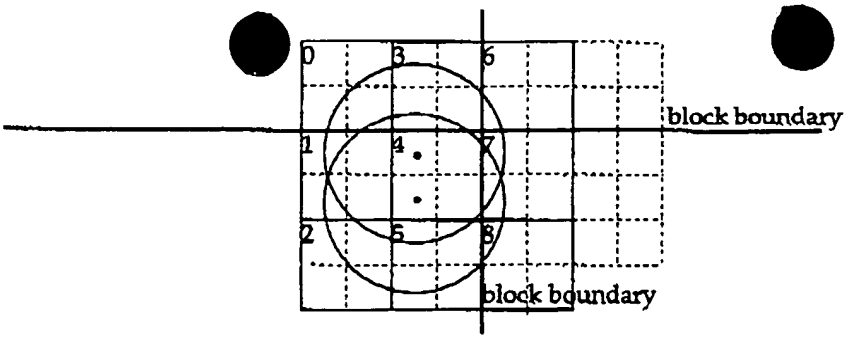
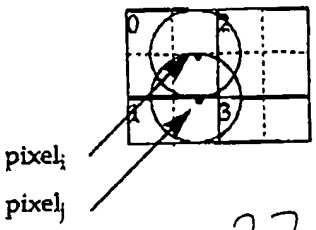


Figure 25

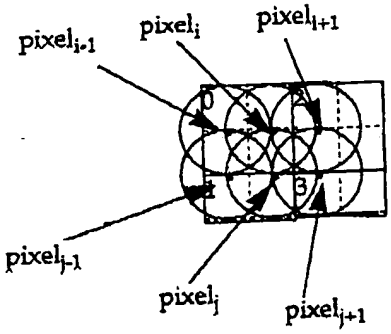


26



0 read tile 0
1 read half tile 1
2 read tile 2
3 read half tile 3
4 filter pixel$_i$

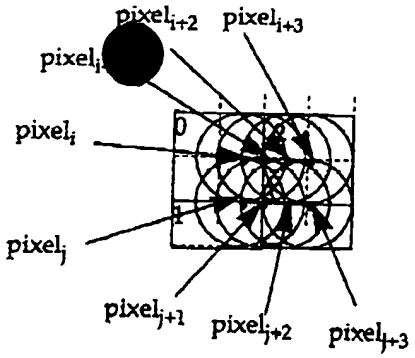
27



0 read tile 0
1 read half tile 1
2 filter pixel$_{i-1}$ & pixel$_{j-1}$
3 read tile 2
4 read half tile 3
5 filter pixel$_j$ & pixel$_j$
6 filter pixel$_{i+1}$ & pixel$_{j+1}$

28

Document 1 of 1



0 read tile 0
1 read half tile 1
2 read tile 2
3 read half tile 3
4 filter pixel$_i$& pixel$_j$
5 filter pixel$_{i+1}$& pixel$_{j+1}$
6 filter pixel$_{i+2}$& pixel$_{j+2}$
7 filter pixel$_{i+3}$& pixel$_{j+3}$

29

For Non-Buddy Mode:

binInlv [1:0] \ sample[1:0]	0	1	2	3
0	a	b	c	d
1	c	d	a	b
2	d	c	b	a
3	b	a	d	c

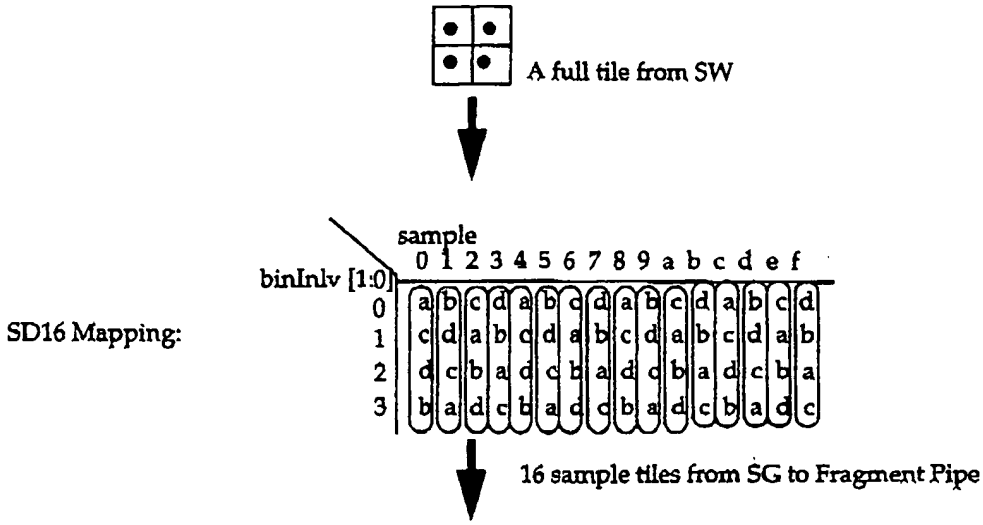
where a, b, c, d identify different interleave bus to 3DRAM

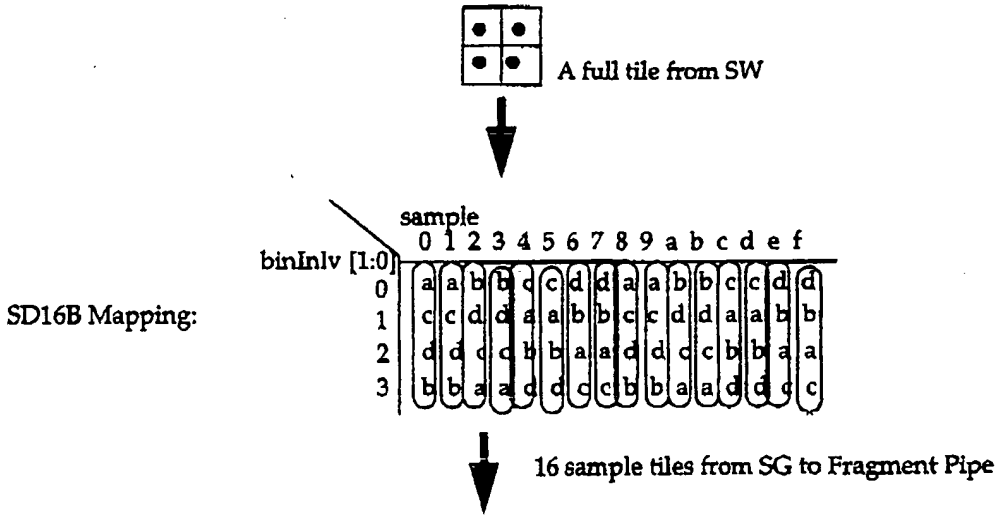
For Buddy Mode:

binInlv [1:0] \ sample[2:0]	0	1	2	3	4	5	6	7
0	a	a	b	b	c	c	d	d
1	c	c	d	d	a	a	b	b
2	d	d	c	c	b	b	a	a
3	b	b	a	a	d	d	c	c

where a, b, c, d identify different interleave bus to 3DRAM

— Figure 30


A full tile from SW
sample
0 1 2 3 4 5 6 7 8 9 a b c d e f
binInIv [1:0]
0
1
2
3
SD16 Mapping:
16 sample tiles from SG to Fragment Pipe


A full tile from SW
sample
0 1 2 3 4 5 6 7 8 9 a b c d e f
binInIv [1:0]
0
1
2
3
SD16B Mapping:
16 sample tiles from SG to Fragment Pipe

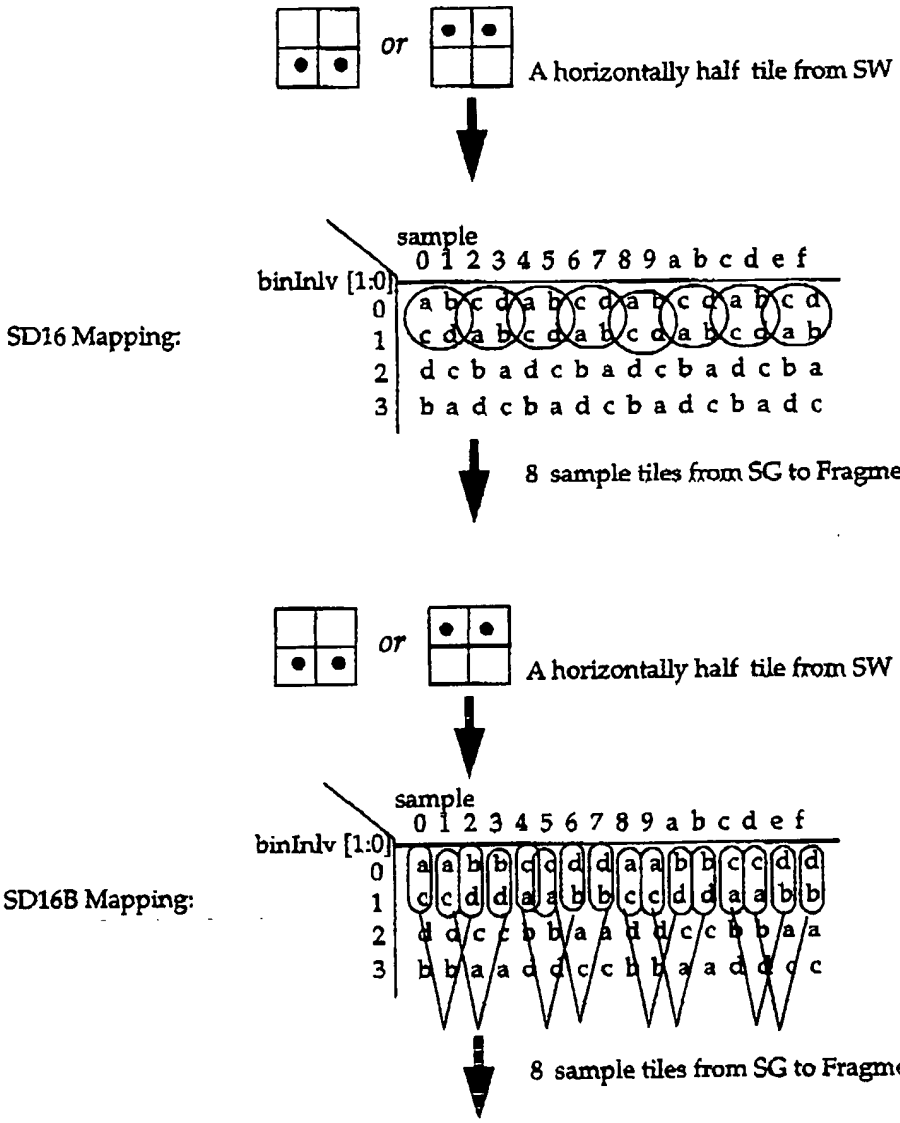


Exhibit 1002 - Continuation

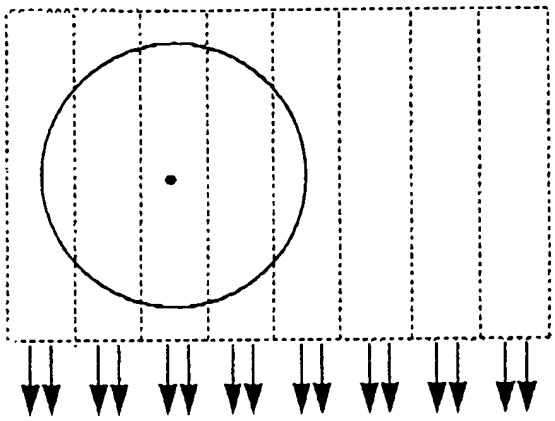


Fig 33

1005500.020202

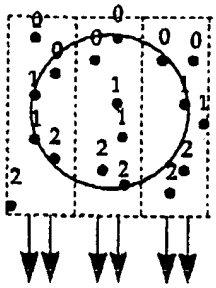
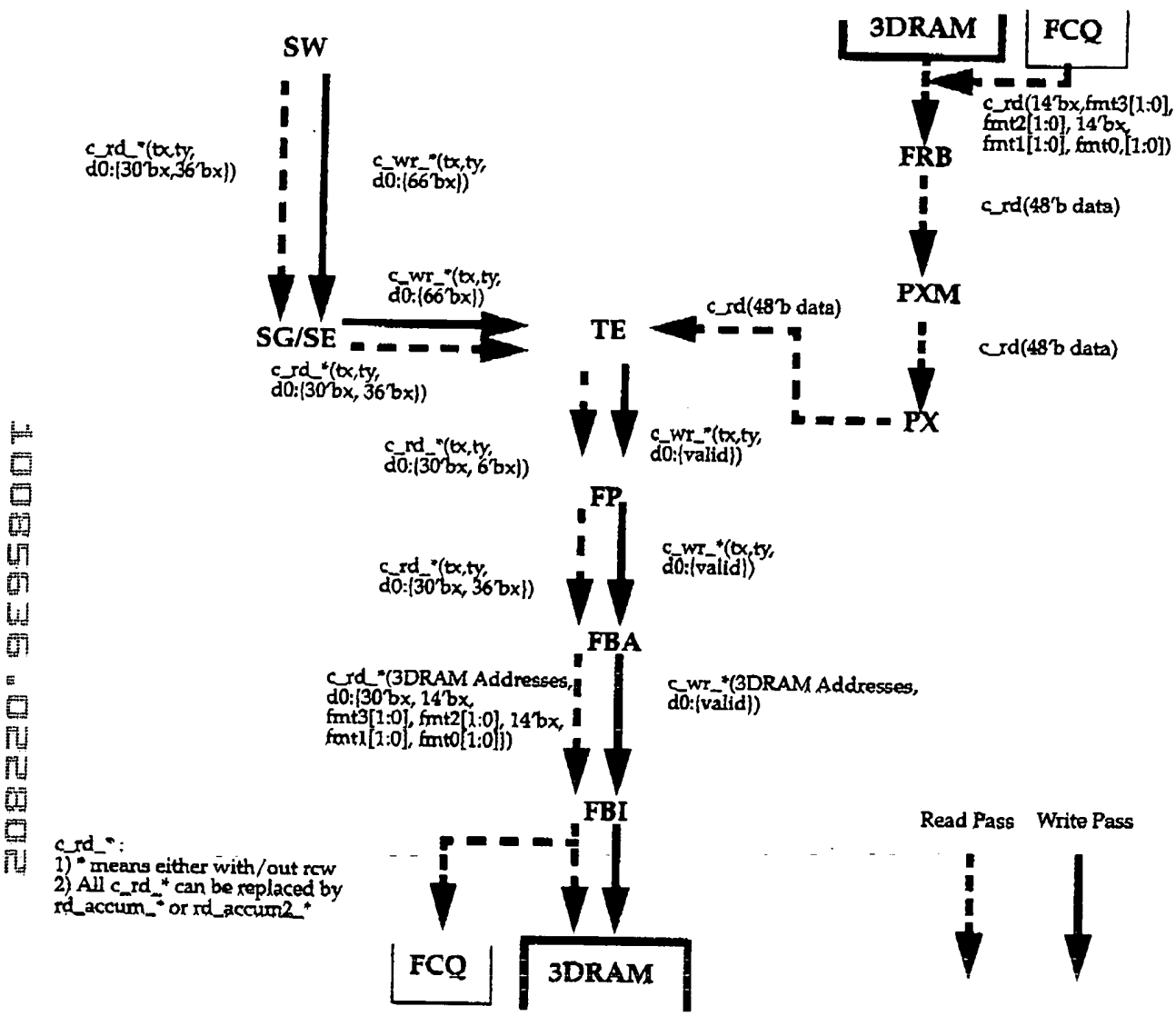


Fig 34


SW
3DRAM
FCQ
c_rd_*(tx,ty,
d0:{30'bx,36'bx})
c_wr_*(tx,ty,
d0:{66'bx})
c_rd(14'bx,fmt3[1:0],
fmt2[1:0], 14'bx,
fmt1[1:0], fmt0,[1:0])
FRB
c_rd(48'b data)
PXM
c_wr_*(tx,ty,
d0:{66'bx})
SG/SE
TE
c_rd(48'b data)
c_rd(48'b data)
c_rd_*(tx,ty,
d0:{30'bx, 36'bx})
PX
c_rd_*(tx,ty,
d0:{30'bx, 6'bx})
c_wr_*(tx,ty,
d0:{valid})
FP
c_rd_*(tx,ty,
d0:{30'bx, 36'bx})
c_wr_*(tx,ty,
d0:{valid})
FBA
c_rd_*(3DRAM Addresses,
d0:{30'bx, 14'bx,
fmt3[1:0], fmt2[1:0], 14'bx,
fmt1[1:0], fmt0[1:0]})
c_wr_*(3DRAM Addresses,
d0:{valid})
FBI
Read Pass
Write Pass
c_rd_*:
1) * means either with/out rcw
2) All c_rd_* can be replaced by
rd_accum_* or rd_accum2_*
FCQ
3DRAM

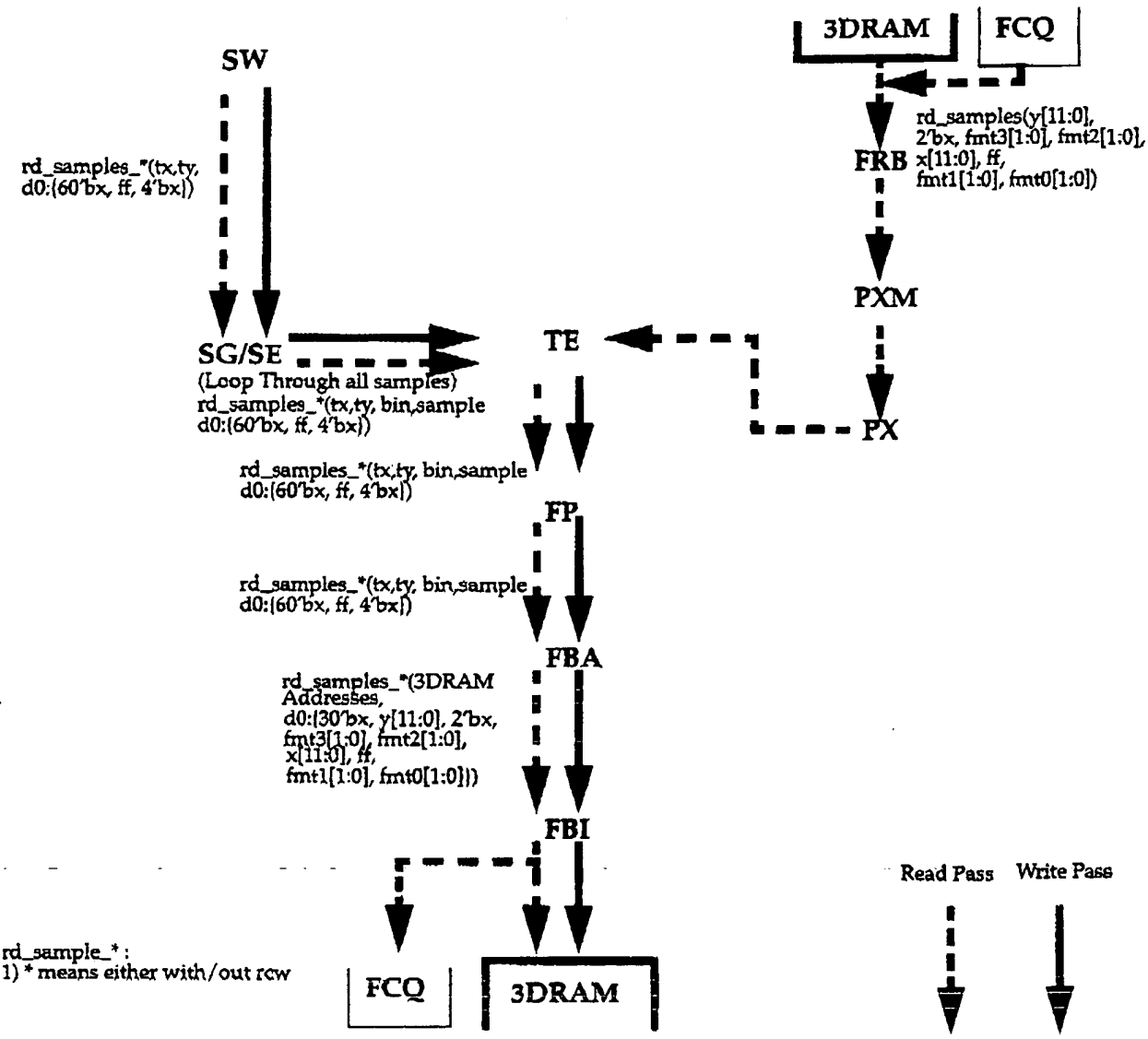
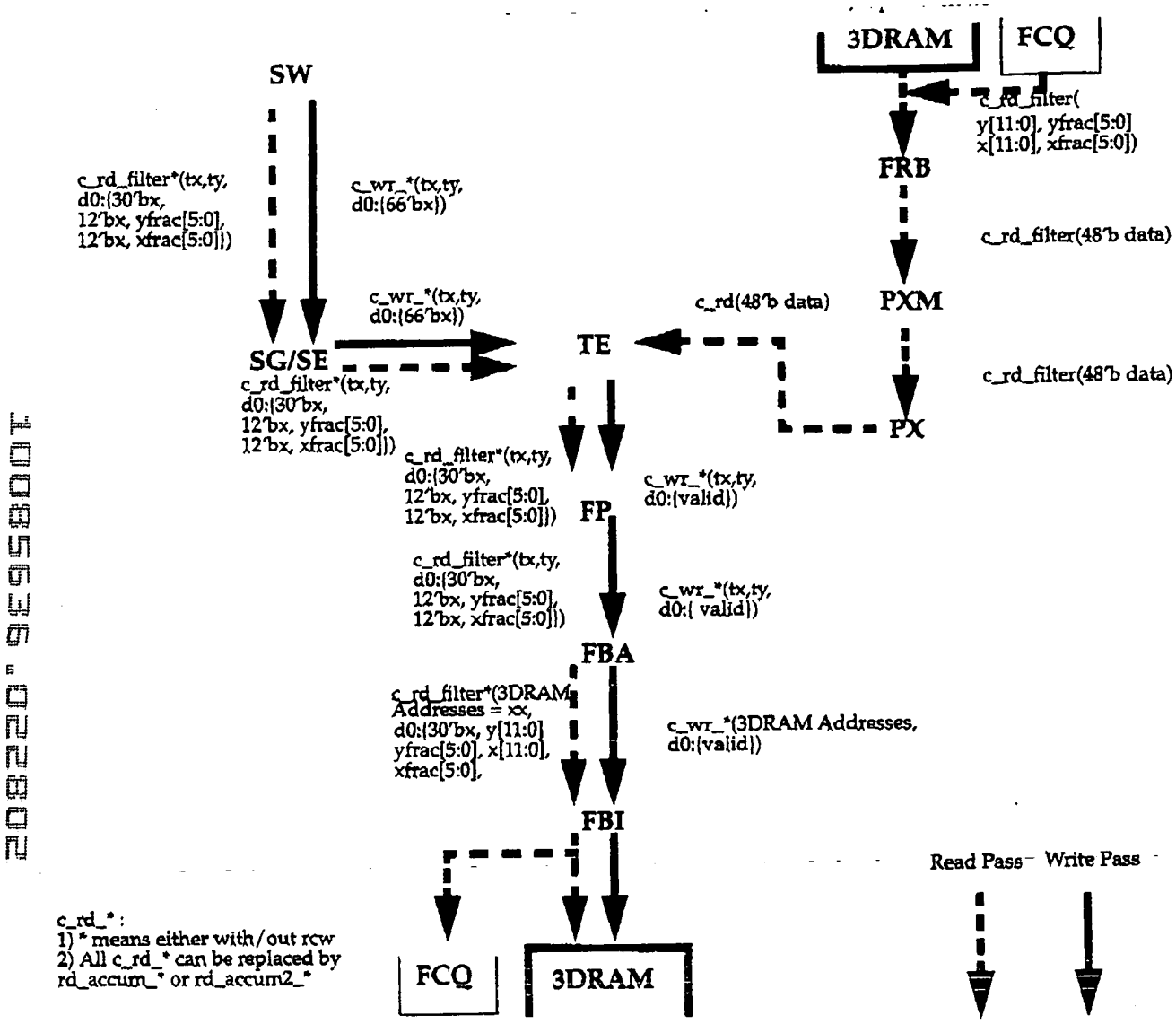

SW
3DRAM
FCQ
rd_samples_*(tx,ty,
d0:{60'bx, ff, 4'bx})
rd_samples(y[11:0],
2'bx, fmt3[1:0], fmt2[1:0],
x[11:0], ff,
fmt1[1:0], fmt0[1:0])
FRB
PXM
SG/SE
(Loop Through all samples)
rd_samples_*(tx,ty, bin,sample
d0:{60'bx, ff, 4'bx})
TE
PX
rd_samples_*(tx,ty, bin,sample
d0:{60'bx, ff, 4'bx})
FP
rd_samples_*(tx,ty, bin,sample
d0:{60'bx, ff, 4'bx})
FBA
rd_samples_*(3DRAM
Addresses,
d0:{30'bx, y[11:0], 2'bx,
fmt3[1:0], fmt2[1:0],
x[11:0], ff,
fmt1[1:0], fmt0[1:0]})
FBI
Read Pass
Write Pass
rd_sample_* :
1) * means either with/out rcw
FCQ
3DRAM

Fig 36


3DRAM
FCQ
SW
c_rd_filter(
y[11:0], yfrac[5:0]
x[11:0], xfrac[5:0])
FRB
c_rd_filter*(tx,ty,
d0:{30'bx,
12'bx, yfrac[5:0],
12'bx, xfrac[5:0]})
c_wr_*(tx,ty,
d0:{66'bx})
c_rd_filter(48'b data)
c_wr_*(tx,ty,
d0:{66'bx})
c_rd(48'b data)
PXM
TE
SG/SE
c_rd_filter*(tx,ty,
d0:{30'bx,
12'bx, yfrac[5:0],
12'bx, xfrac[5:0]})
c_rd_filter(48'b data)
PX
c_rd_filter*(tx,ty,
d0:{30'bx,
12'bx, yfrac[5:0],
12'bx, xfrac[5:0]})
FP
c_wr_*(tx,ty,
d0:{valid})
c_rd_filter*(tx,ty,
d0:{30'bx,
12'bx, yfrac[5:0],
12'bx, xfrac[5:0]})
c_wr_*(tx,ty,
d0:{ valid})
FBA
c_rd_filter*(3DRAM
Addresses = xx,
d0:{30'bx, y[11:0]
yfrac[5:0], x[11:0],
xfrac[5:0],
c_wr_*(3DRAM Addresses,
d0:{valid})
FBI
Read Pass
Write Pass
c_rd_* :
1) * means either with/out rcw
2) All c_rd_* can be replaced by
rd_accum_* or rd_accum2_*
FCQ
3DRAM

7437